

## CLAIMS

- 1     1.     A mass flow rate measuring device which works on the Coriolis principle com-  
2     prises  
3         a measuring line;  
4         a tension sensor attached to the measuring line for sensing the mechanical tension  
5     in the measuring line and producing a corresponding tension signal, and  
6         a pressure signal output facility connected to receive the tension signal, said pres-  
7     sure signal output facility providing a pressure signal ascertained on the basis of said ten-  
8     sion signal.
- 1     2.     The mass flow rate measuring device according to claim 1, and further including a  
2     mass flow rate output facility connected with the pressure signal output facility, said mass  
3     flow rate output facility providing a mass flow rate signal corrected on the basis of said  
4     pressure signal.
- 1     3.     The mass flow rate measuring device according to claim 1 or 2, wherein said  
2     measuring line is a thin-walled measuring line whose diameter and length are of substan-  
3     tially the same magnitude.
- 1     4.     The mass flow rate measuring device according to claim 1 or 2, wherein said ten-  
2     sion sensor is a length variation sensor, in particular a strain gauge, which is suitable for  
3     recording changes in the circumference of the measuring line.
- 1     5.     The mass flow rate measuring device according to claim 1 or 2, wherein the ten-  
2     sion sensor is oriented in the circumferential direction of the measuring line so that the  
3     tension sensor is influenced only by changes in the circumferential tension of the meas-  
4     uring line.

1 6. The mass flow rate measuring device according to claim 5, and further including  
2 an auxiliary tension sensor attached to the measuring line such that it is not influenced by  
3 said circumferential tension.

1 7. The mass flow rate measuring device according to claim 6, wherein the auxiliary  
2 tension sensor is connected with the pressure signal output facility and transmits an aux-  
3 iliary tension signal thereto, said pressure signal output facility producing a pressure sig-  
4 nal corrected on the basis of said auxiliary tension signal.

1 8. A process for measuring the pressure on a mass flow rate measuring device which  
2 works according to the Coriolis principle and has a measuring line, said process com-  
3 prising the steps of  
4 recording the mechanical tension of the measuring line, and  
5 ascertaining the pressure in the measuring line on the basis of the recorded me-  
6 chanical tension of the measuring line.

1 9. The process according to claim 8, including the step of providing a mass flow rate  
2 signal corrected on the basis of the ascertained pressure.

1 10. The process according to claim 8 or 9, wherein the tension is recorded by means  
2 of a change in circumference of the measuring line.

1 11. The process according to claim 10, wherein only the change in circumference of  
2 the measuring line is recorded as tension, and including the additional step of recording  
3 an auxiliary tension which is not influenced by the circumferential tension.

1 12. The process according to claim 11, including the step of correcting the pressure  
2 ascertained on the basis of the circumferential tension by means of the auxiliary tension.

- 1 13. The process according to claim 8 or 9, including the step of forming the measur-
- 2 ing line as a thin-wall measuring line whose diameter and length are of substantially the
- 3 same magnitude.